

XXXI.—Notes on Myriapoda.—XII.* *A Preliminary List for Derbyshire, with a Description of Brachychaeteuma quartum, sp. n., and Chordeumella scutellare bagnalli, var. n.* By HILDA K. BRADE-BIRKS, M.Sc., M.B., Ch.B., L.R.C.P., M.R.C.S., and the Rev. S. GRAHAM BRADE-BIRKS, M.Sc.

I. INTRODUCTION.

A short holiday in Derbyshire at the end of May and beginning of June 1918 gave us an opportunity to collect some centipedes and millipedes; and we feel that the results are of sufficient interest to warrant the publication of a preliminary list for the county, so arranged as to make mention of some of the work previously done by other collectors as well as to include our own 1918 records. Also, in September 1916, we made one excursion from the Staffordshire side to the Derbyshire–Staffordshire boundary near Beresford Hall; and, although there was some confusion in our minds as to the exact position of the boundary, we have incorporated some relevant results of that day's work in the present paper, recording the specimens taken there as from "near the R. Dove," because we are practically certain that these are truly Derbyshire occurrences. If we are in error about the county, the animals thus recorded were found close to the boundary of the shires, but on the Staffordshire side. Two species included under these circumstances in the present list, viz. *Polydesmus denticulatus* and *Scolioptanes acuminatus*, are not otherwise known to us from Derbyshire.

In several cases of material placed at our disposal by Mr. Standen, Mill Dale (Staffordshire) is included in our detailed records, because it is coupled as a collecting-ground with Dove Dale (Derbyshire); but in no case does such an occurrence stand alone as a county record.

In the Diplopoda and Chilopoda (with which this paper deals) we now know some thirty-one Derbyshire forms, and these are enumerated below:—

DIPLOPODA (= Millipedes).

1. *Glomeris marginata* (Villers).
2. *G. marginata perplexa*, Latzel.
3. *Iulus ligulifer*, Latzel & Verhoeff.

* A previous paper in this series—the fifth—appeared in this Journal, May 1917, ser. 8, vol. xix. p. 417.

4. *I. (Ophiulus) fallax*, Meinert.
5. *I. (Tachypodoiulus) albipes*, C. L. Koch.
6. *I. (Cylindroiulus) silvarum*, Meinert.
7. *I. (Cylindroiulus) britannicus*, Verhoeff.
8. *Schizophyllum sabulosum* (Linné).
9. *Trichoblanidus guttulatus* (Bosc).
10. *Amsteinia fuscus* (Am Stein).
11. *Polydesmus complanatus* (Linné).
12. *P. coriaceus*, Porat.
13. *P. denticulatus*, C. L. Koch.
14. *Brachydesmus superus mosellanus*, Verhoeff.
15. *Ophiodesmus albonanus* (Latzel).
16. *Brachycheteuma quartum*, sp. n.
17. *Polymicrodon latzeli* (Verhoeff).
18. *Chordeumella scutellare bagnalli*, var. n.

CHILOPODA (=Centipedes).

19. *Lithobius forficatus* (Linné).
20. *L. variegatus*, Leach & Brölemann.
21. *L. melanops*, Newport.
22. *L. crassipes*, L. Koch.
23. *L. duboscqui*, Brölemann.
24. *Cryptops hortensis*, Leach.
25. *Geophilus carpophagus*, Leach.
26. *G. longicornis*, Leach.
27. *G. insculptus*, Attems.
28. *G. electricus* (Linné).
29. *Brachygeophilus truncorum* (Bergsøe & Meinert).
30. *Stigmatogaster subterraneus* (Leach).
31. *Scoliplanes ucuminatus* (Leach).

The nomenclature in the two classes is difficult, especially the nomenclature of genera and subgenera, and, as there is difference of opinion amongst the leading authorities, it cannot be claimed that there is finality about all the names we have used in the foregoing list, nor by using these do we wish to infer that we have refused to consider the claims to priority of others. The fact is that we have not yet had the opportunity to consider all the complicated evidence involved in the question of some of these generic and subgeneric names.

In the detailed records in the second section of this paper other collectors' names are cited by initials, as follows:—

Mrs. Furness, *A. W. F.*; Mr. J. Wilfrid Jackson, *J. W. J.*; Mr. R. Standen, *R. S.*; Mr. C. R. Brown, *C. R. B.*; Mr. William Boulsover, *W. B.*

To each of these we offer our best thanks.

An asterisk indicates that the material forms a part of Mr. R. Standen's collection. When a record is followed by the letter G. and a number, the material is so registered at the Manchester Museum. The letter *J.* in brackets, after a

record, indicates that the identification is that of our friend Captain A. Randell Jackson, M.C., M.D., D.Sc., R.A.M.C.

In the section of the paper which deals with detailed records we have introduced a few diagnostic points which may be of value to other naturalists.

Geological Considerations, etc.

As far as our own 1918 collecting in the county is concerned, we worked in two areas, both of them predominantly limestone (Carboniferous Limestone) regions. The one was the Buxton neighbourhood, where Burbage was our centre, and where all our collecting was on the limestone, and the other was mostly in the limestone triangle roughly formed by Bakewell, Ashford, and Great Longstone; this area is indicated in the present paper as "Bakewell district," except where more explicit details are given—as, for example, in describing the occurrence of the new animals. One of us (S. G. B.-B.) accompanied the veteran local naturalist and antiquarian, Mr. William Boulsover, of Bakewell, on one excursion to Manners Wood, which stands out on a sandstone (Yoredale Series) ridge close to the town of Bakewell; the collecting done there is clearly indicated in the body of the records, but it may be noted that, in one short visit, *Lithobius variegatus* was taken there, although the writers did not meet with it in either of the limestone areas, one near by, on the occasion of their 1918 (May-June) collecting. The distribution of this species, which is the only centipede on our British list which is unknown outside the British Isles, is extremely interesting, and worthy of careful study, in which natural factors, including altitude, vegetation, and geological features should certainly be taken into account.

It may be added that the junction between the Carboniferous Limestone and the Yoredale Rocks in the neighbourhood of the Derbyshire-Staffordshire boundary, where we collected in September 1916, is near the county boundary in that area, the Derbyshire side being the border of an extensive limestone region.

Cave Hunting.

During our stay in the Bakewell district we made one excursion through Monsal Dale to Cressbrook with Mr. J. R. Widdowson to visit a cave in the limestone at Burynewick, but, after all, we were not successful in finding any myriapods there. Some good results are to be expected from

a proper exploration of our English caves, and this note may serve as a reminder to naturalists who visit caves for the purpose of studying other branches of science.

II. DETAILED RECORDS¹.

Class *DIPLOPODA*.

Subclass *CHILOGNATHA*.

Family *Glomeridæ*, Leach, 1814.

Subfamily *GLOMERINÆ*, Verhoeff, 1910.

Genus *GLOMERIS*, Latreille et Leach.

1. *G. marginata* (Villers, 1789).

10-20 mm.

This is the common pill-millipede. It is black dorsally, but the pleurotergites are edged with white.

*Cave Dale, *R. S.*, in a recent year (*J.*), *G.* 3143; *Castleton, *R. S.*, vi./13; *Dove Dale, *R. S.*, *J. W. J.*, *C. R. B.*, 25/v./16; near the R. Dove, ourselves, 1916; Bakewell district, ourselves, 1918; one example, Manners Wood, near Bakewell, *W. B. & S. G. B.-B.*, 6/vi./18.

In addition to the above examples we have examined specimens from Millers Dale which do not appear to be typical. In spirit-specimens the dorsal surface of the body exhibits a row of light spots on either side of the middle line, due to the fact that the lateral parts of each pleurotergite are marked by definite light oval areas. The dimensions are the same as those of the typical form. We think it inadvisable, however, to establish a new variety on the material at our disposal until, at any rate, we have made a detailed study of the English representatives of the genus.

Seven examples, Millers Dale, *R. S.*, 17/vi./17.

Types. 1302, Brade-Birks collection.

2. *G. marginata perplexa*, Latzel.

6.5 mm.

At present we think it advisable to treat this form as of subspecific rank. Mr. Bagnall says (1) of this animal, "I cannot think that it can be a form of *marginata*, and *connexa*

¹ The typical length of the species is given in each case as a guide to those interested in the group. Where the dimensions are not our own, we are indebted to various authors.

is unknown in our Islands; a study of British examples may show it to be a distinct species."

We have not yet been able to make a careful study of the genus *Glomeris*, but we may add that the animal in question is smaller than *G. marginata marginata*, although it has the white edges of the pleurotergites as in that form. Its general body-colour is brown, and its dorsal surface is furnished with four longitudinal rows of light spots. Two rows are distinctly lateral, while two are close to the median line. These more median rows are formed by a pair of spots on each pleurotergite, which tend to coalesce anteriorly and form a V-shaped marking on each segment. These more median rows alone are continued on to the last segment. Professor Ribant has recorded the animal (10) under the name of *G. connea perplexa*, Latzel; Dr. Verhoeff, on the other hand, records it (13) as *G. marginata perplexa*, Latzel, and adds a note of which the following is a rough translation:—"Recent investigations have shown me that *perplexa* and *marginata* belong to the same species, but not to *connea*; I shall reconsider this point more carefully in another paper." We are not familiar with any later note by Verhoeff on this subject.

*One specimen junior, Castleton, *R. S.*, vi./13.

Family Iulidæ, Leach (ex p.), 1814.

(Genus IULUS (s. l.), Brandt, 1833.)

Genus IULUS, Brandt.

3. *I. ligulifer*, Latzel and Verhoeff.

Syn. *I. scandinavicus*, Latzel.

15-35 mm.

Verhoeff (13) includes this species in the subgenus *Micro-podoiulus*.

The females of this species are very like those of *I. fallax*. The coxite of the second leg of the male, however, bears an oval expansion, which serves to characterize *I. ligulifer*.

1 ♂, 2 ♀ ♀, Buxton district, ourselves, 1918.

4. *I. (Ophiulus) fallax*, Meinert, 1868.

Syn. *I. longabo*, C. L. Koch, 1847.

♂ 18-32, ♀ 25-45 mm.

A fair-sized black julid, very like *I. ligulifer*, the females being practically indistinguishable from those of that species.

Both animals have an acute caudal process and smooth pronotites. In *I. fallax* the legs of the first pair, in the male, are sickle-shaped.

*1 ♀ (or *I. ligulifer*), Cave Dale, *R. S.*, in a recent year (*J.*), G. 3159; both sexes, Bakewell district, ourselves, 1918.

Genus TACHYPODOIULUS.

5. *T. albipes* (C. L. Koch).

Syn. ? *I. niger*, Leach.

I. transversosulcatus, Am Stein.

♂ 22-30, ♀ 25-35 mm.

This large black julid is easily distinguishable under the microscope by the presence of transverse striæ on the pronotites, to which Am Stein's name for the species owes its origin. This animal is common in our islands.

*♀, Kings Sterndale, near Buxton, *R. S.*, 18/viii./13 (*J.*), G. 3154; *♂, ♀♀, in a collection from Dove and Mill Dales, *R. S.*, 21/iv./14 (*J.*); 1♂, near the R. Dove, ourselves, ix./16; Buxton & Bakewell districts, ourselves, 1918.

Genus CYLINDROIULUS, Verhoeff.

(1894 as a subgenus, 1899 as a genus).

Prof. Silvestri informs us, *in litt.*, that he considers that *Cylindroiulus* and *Diploiulus*, Berlese, 1886 (2) are synonymous, the latter having precedence. This conclusion, however, does not meet with the approval of all continental authorities.

6. *C. silvarum* (Meinert).

Syn. ? *I. punctatus*, Leach.

15-25 mm.

An animal commonly found between the bark and trunk of rotting logs. The caudal process is club-shaped.

*♀, in a collection from Dove and Mill Dales, *R. S.*, 21/iv./14 (*J.*); 1♀, near the R. Dove, ourselves, ix./16; both sexes, Bakewell district, ourselves, 1918; several, including 1♂, Manners Wood, near Bakewell, *W. B. & S. G. B.-B.*, 6/vi./18.

7. *C. britannicus* (Verhoeff, 1891).

Syn. *I. frisioides*, Verhoeff, 1892.

I. luscus, Meinert, as used by Bagnall and by ? Jackson. On this point see Bagnall's note (1) and our own (3).

16-18 mm.

An interesting tailless julid. The only known English millipede with which this is likely to be confused is *C. frisius*, Verhoeff, from which it is distinguished by the form of the gonopods of the male. Upon dissection, we found that one male taken by us at Great Longstone, 1918, belongs to this species. This specimen in spirit was 12.5 mm. long. A female taken by one of us (*S. G. B.-B.*) at Burbage Hall, 27/v./18, is probably referable to this species.

Genus SCHIZOPHYLLUM.

8. *S. subulosum* (Linné).

20-46 mm.

This is a large and handsome julid, marked with two bright yellow dorsal stripes running the whole length of the body.

*2 ♀ ♀, The Winnats, Castleton, *R. S.*, in a recent year (*J.*), G. 3164; numerous, Dove Dale, *R. S.*, *J. W. J.*, *C. R. B.*, 25/v./16; 1 ♂ junior, near the R. Dove, ourselves, ix./16; adults, Bakewell district, ourselves, 1918.

Family Protoiulidæ.

(Genus BLANIULUS (s. l.), Gervais, 1836.)

Genus TRICHOBLANIULUS, Verhoeff.

Syn. Verhoeff uses the subgeneric name *Typhloblaniulus* (13), which is used as generic by Ribaut (9).

9. *T. guttulatus* (Bosc).

Syn. ? *Iulus pulchellus*, Leach (nec C. L. Koch).

9-18 mm.

A common blind blaniulid, which is sometimes a pest in potato crops. It is a worm-like form.

Both sexes, Bakewell district, ourselves, 1918.

Genus AMSTEINIA, Verhoeff.

10. *A. fuscus* (Am Stein).

9-16 mm.

Males of this species are rare; the present record is, however, admissible, as the eyes prove a useful diagnostic character. The ocelli are arranged much the greater number in a long single row, the remainder in a small elongated triangle with its base against the central part of the row. The animal

is often associated with *Cylindroiulus silvarum*, and its usual habitat is between the bark and trunk of rotting logs.

Very few specimens (no adult ♂), Bakewell district, ourselves, 1918.

Family Polydesmidæ, Leach (ex p.), 1814.

Genus POLYDESMUS, Latreille, 1802 & 1804.

11. *P. complanatus* (Linné).

13-28.5 mm.

This large flat-backed millipede is common in the British Isles. Its gonopods are distinctive. The genus has twenty body-segments.

*2 ♂♂, The Winnats, Castleton, *R. S.*, in a recent year (*J.*), G. 3149; *2 ♂♂ and juniors, Cave Dale, *R. S.*, in a recent year (*J.*), G. 3136; *♂♂♀♀, in a collection from Dove and Mill Dales, *R. S.*, 21/iv./14 (*J.*); ♂, near the *R. Dove*, ourselves, ix./16; Bakewell, ourselves, 4/vi./18; 1 ♂, Manners Wood, near Bakewell, *W. B. & S. G. B.-B.*, 6/vi./18; Bakewell district, ourselves, 1918.

12. *P. coriaceus*, Porat.

12.5 mm.

This species is smaller than *P. complanatus*, also the males have distinctive gonopods. A male from Great Longstone which we dissected for careful diagnosis was 12.5 mm. long.

Bakewell district, ourselves, 1918.

13. *P. denticulatus*, C. L. Koch, 1847.

10-16 mm.

Again the gonopods of the male are diagnostic. In this character we did not find the male recorded below quite typical. The slight difference, however, is probably no more than an individual peculiarity in the specimen in question. On the whole the condition of the gonopod is similar to that of the preparation given by Dr. Brölemann in figure 34 in the xviii. paper of the 'Biospeologica' series (7). In our example the secondary ramus is arched much as that is in the fig. 34 cited. To adopt the lettering used by Dr. Brölemann, its external appendix (*p*) is well developed, broad, slightly arched, and furnished with a well-marked sharp tooth (*p'*) near the base, as in figure 34 (*op. cit.*). The individual difference we have noted (*ante*) consists in the presence of a second small tooth on the internal face of the distal part of

the secondary ramus. The seminal ramus presents the usual features; the small tooth (*y*) of the external face is well-developed.

1 ♂ (and ? other material), near the R. Dove, ourselves, ix./16.

Genus BRACHYDESMUS, C. Heller, 1857.

Species *B. superus*, Latzel, 1884.

14. *B. superus mosellanus*, Verhoeff, 1891.

8.5–9 mm.

The genus to which this animal belongs has nineteen body-segments. The present variety, with typical gonopods in the male, seems to be the common English form. We have dissected specimens from both the localities mentioned below. In the garden of Beech House, Great Longstone, we met with large numbers of the animal.

Buxton and Bakewell districts, ourselves, 1918.

Genus OPHIODESMUS.

15. *O. albanus* (Latzel).

Syn. *Paradesmus albanus*, Latzel.

4.5 mm.

This minute square-backed millipede (our spirit-specimen is 4.5 mm. long) will probably prove to be not uncommon in Britain. Dr. Brölemann kindly confirmed the species by examining a drawing of the gonopod dissected from a specimen collected in another part of the country by our friend Mr. Bagnall, who was good enough to send it to us, correctly labelled. The example recorded below was adult, being furnished with the characteristic gonopods of the species. We suspect that the animal occurs in the garden of Ashford Vicarage, but we failed to obtain adult males there in spite of careful collecting.

1 ♂, in the garden of Mrs. Thornhill's home, Beech House, Great Longstone, ourselves, 1918.

Family **Brachychæteumidæ**, Verhoeff et Brade-Birks, 1911, 1918.

Genus **BRACHYCHÆTEUMA**, Verhoeff et Brade-Birks, 1911, 1918.

Syn. Owing to errors in Verhoeff's original description we established *Jacksoneuma*, 1917, to receive a new species *Brachychæteuma bradeæ* (Brölemann et Brade-Birks, 1917) (5). In the light of new material of the genotypical species, *Jacksoneuma* becomes a synonym of *Brachychæteuma*.

16. *B. quantum*, Brade-Birks (to be described later in the present paper).

♀ 7-8 mm.

While collecting on a slope by the side of the Ashford road, close to the town of Bakewell, one of us (*H. K. B.-B.*) came across a specimen of a square-backed millipede which we recognized in the field as belonging to the family Brachychætenidæ. Although we searched carefully not only both of us on this, but also one of us on another occasion, we failed to collect another example. It became clear upon examination with the microscope that this specimen could not be referred to any of the three known species; a description is therefore given in another part of this paper.

1 ♀, near Bakewell, *H. K. B.-B.*, 29/v./18.

Family Craspedosomidæ, Verhoeff, 1909.

Subfamily CRASPEDOSOMINÆ, Verhoeff, 1909.

Tribe CRASPEDOSOMINI, Verhoeff, 1909.

Genus POLYMICRODON, Verhoeff, 1897.

Subgenus POLYMICRODON (*s. str.*), Verhoeff, 1897.

17. *P. latzeli* (Verhoeff, 1891).

Syn. *Atractosoma latzeli*, Verhoeff, 1891.

? *Atractosoma polydesmoides*, Leach.

? *Atractosoma latzeli gallicum*, Verhoeff, 1895.

? *Craspedosoma latzeli gallicum*, Verhoeff, 1896.

? *Polymicrodon latzeli gallicum*, Verhoeff, 1897.

17-18 mm.

A flat-backed animal with thirty body-segments. We have little doubt that this species should be called *P. polydesmoides* (Leach), but until the type-specimens of Leach's animal are examined it seems unwise for us to make the alteration. The characteristic gonopods are figured by Verhoeff (12), and those of *P. latzeli gallicum*, which is perhaps a synonym, by Ribaut (11).

* ♂♂, Cave Dale, *R. S.*, in a recent year (*J.*), G. 3147. We also took specimens almost certainly referable to this species in the Bakewell district, 1918, but there were no adult males for definite diagnosis.

Family *Chordeumidæ*, Verhoeff, 1899.

Subfamily *MICROCHORDEUMINÆ*, Verhoeff, 1910.

Genus *CHORDEUMELLA*, Verhoeff.

Species *C. scutellare*, Ribaut, 1913.

18. *C. scutellare bagnalli*, Brade-Birks (to be described later in the present paper).

6.0 mm.

While collecting in the garden of Beech House, Great Longstone, one of us found a number of specimens of a small millipede of the genus *Chordeumella*. Upon microscopic examination it became evident that this creature cannot be referred to the only known British representative of the genus, *C. scutellare brölemanni*, Brade-Birks, although it falls into the species *C. scutellare*. Nevertheless we found differences which justify a subspecific name for this animal, which is described later in this study.

Numerous males, but no satisfactory females, *S. G. B.-B.*, Great Longstone, 1918.

Class *CHILOPODA*.

Family *Lithobiidæ*, Newport, 1844.

Genus *LITHOBIUS*, Leach, 1814.

19. *L. forficatus* (Linné, 1758).

15-32 mm.

This large and active brown centipede has more than two teeth on each of the coxæ of the maxillipedes. Its seventh dorsal plate is not produced posteriorly. The anal legs are stout. It is common all over the British Isles, under stones and in other damp situations. We have previously (4) recorded it for the county, as it was sent to us from Great Longstone (1 ♀, *A. W. F.*, 13/x./15); *Dove Dale, *R. S.*, iv./12 (*J.*), *G.* 3172; *in a collection from Dove and Mill Dales, *R. S.*, 21/iv./14 (*J.*); near the R. Dove, ourselves, ix./16; Manners Wood, near Bakewell, *W. B. & S. G. B.-B.*, 6/vi./18; Burbage Hall, *S. G. B.-B.*, 27/v./18; Buxton and Bakewell districts, ourselves, 1918.

20. *L. variegatus*, Leach et Brölemann.

20 mm.

This large and truly British variegated centipede has more

than two teeth on each of the coxæ of the maxillipedes. Its seventh dorsal plate has angular projections from each end of its posterior border. The anal legs are slender. It is often to be found under stones in moorland districts. We do not seem to have met with it ourselves in the Carboniferous Limestone areas of Derbyshire in 1918.

*♂ ♀, Kings Sterndale, near Buxton, *R. S.*, in a recent year (*J.*), G. 3176; *in a collection from Dove and Mill Dales, *R. S.*, 21/iv./14 (*J.*); near the R. Dove, ourselves, ix./16; Manners Wood, near Bakewell, *W. B. & S. G. B.-B.*, 6/vi./18.

21. *L. melanops*, Newport, 1845.

Syn. *L. glabratus*, C. L. Koch, 1847.

10-16 mm.

A species, with numerous ocelli and 2+2 maxillipede-teeth, which has definite angular projections from the posterior borders of its ninth, eleventh, and thirteenth dorsal plates. It is not uncommon between the trunk and bark of rotting logs.

Burbage Hall, *S. G. B.-B.*, 27/v./18.

22. *L. crassipes*, L. Koch, 1862.

6-9 mm.

A small active crown centipede, with only twenty antennal segments.

*Dove Dale, *R. S.*, in a recent year (*J.*), G. 3165; near the R. Dove, ourselves, ix./16; Manners Wood, near Bakewell, *W. B. & S. G. B.-B.*, 6/vi./18; Bakewell district, ourselves, 1918.

23. *L. dubosequi*, Brölemann.

5.5-7 mm.

Another small species, not unlike *L. crassipes*, but provided with only three ocelli on each side of the head in typical cases.

The Vicarage garden, Ashford-in-the-Water, ourselves, 1918.

Family Scolopendridæ, Newport, 1844.

Genus CRYPTOPS, Leach, 1814.

24. *C. hortensis*, Leach, 1814.

Syn. *C. savignyi*, Leach, 1817.

15-25 mm.

A form intermediate in organization between *Lithobius* and *Geophilus*.

A few, Bakewell district, ourselves, 1918.

Family Geophilidæ, Leach, 1814.

Genus GEOPHILUS, Leach, 1814.

25. *G. carpophagus*, Leach.

Syn. *G. sodalis*, Bergsøe et Meinert.

G. condylogaster, Latzel, 1880.

41 mm.

This is a dark brown species of our well-distributed genus *Geophilus*. The pegs of the anterior ventral plates are prominent and the corresponding sockets comparatively small. We have not ourselves met with this species in the county.

*Dove Dale, *R. S.*, 21/iv./14 (*J.*).

26. *G. longicornis*, Leach, 1814.

Syn. *G. flavus* (De Geer, 1778).

40 mm.

A detailed examination of examples of this species will show that the true peg-and-socket or "carpophagous" structure is wanting in the ventral plates of the animal's body. This character is present in all its known English congeners.

*2 ♀ ♀, Castleton, *R. S.*, ix./13 (*J.*), G. 3135; near the *R. Dove*, ourselves, ix./16; 1 ♀ with forty-seven pairs of legs, Manners Wood, near Bakewell, *W. B. & S. G. B.-B.*, 6/vi./18; Bakewell district, ourselves, 1918.

27. *G. insculptus*, Attems, 1895.

Syn. The name "*G. proximus*" has been used by other authors in this country and ourselves to record animals which undoubtedly belong to *G. insculptus*. The true *G. proximus*, C. L. Koch, 1847, is unknown to us.

25 mm.

In May and June we found *G. insculptus* to be a fairly common species, and we obtained a good number of specimens. The socket of the anterior ventral plates is large.

Buxton and Bakewell districts, ourselves, 1918; Burbage Hall, *S. G. B.-B.*, 27/v./18.

28. *G. electricus* (Linné, 1758).

45 mm.

This is an interesting species, not very common in the

north of England, but apparently well distributed. The specimen recorded below has sixty-nine pairs of legs, and is furnished with typical pores on the coxæ of the anal legs.

1, junior, Bakewell district, ourselves, 1918.

Genus BRACHYGEOPHILUS, Brölemann, 1909.

29. *B. truncorum* (Bergsoe et Meinert).

10-14 mm.

This is the type of the genus, which resembles *Geophilus*. In *Brachygeophilus* the sternites are without pore-fields, the coxal pores are much reduced, the species are very small, and the number of their somites is low and only slightly variable (6). In the case of *B. truncorum* there are three marked depressions on the surface of the anterior ventral plates. It is common in the north of England.

Near the R. Dove, ourselves, ix./16; Bakewell district, ourselves, 1918.

Genus STIGMATOGASTER, Latzel, 1880.

30. *S. subterraneus* (Leach).

Syn. *Himantarium subterraneum* (Leach).

90 mm.

A large species with a clearly defined central pore-field on the anterior ventral plates.

Bakewell district, ourselves, 1918.

Genus SCOLIOPLANES, Bergsoe et Meinert, 1866.

31. *S. acuminatus* (Leach, 1814).

20-34 mm.

This is one of the darker geophilids. The maxillipedes of this genus are sufficiently characteristic to distinguish it at a glance from *Geophilus*. In this species, according to Latzel (8), the male always (in Austria) has thirty-nine pairs of walking-legs; there were thirty-nine pairs in the example recorded below. It would appear that the female may have from forty-one to forty-seven pairs, though Latzel only knew them (*loc. cit.*) with forty-one to forty-three pairs.

1 ♂, near the R. Dove, ourselves, ix./16.

III. DESCRIPTIONS OF THE TWO NEW MILLIPEDES
RECORDED ABOVE, WITH NOTES.

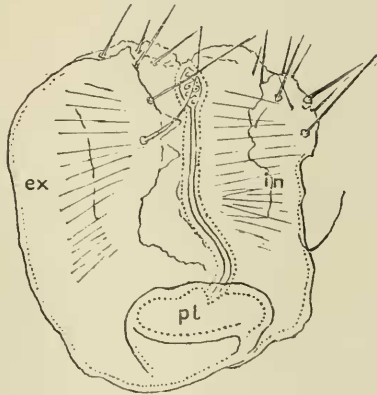
Brachychæteuma quartum, sp. n.

Dimensions approximately the same as those of the known species. Ocelli present, well but irregularly pigmented, few in number—three. The other external characters and the mouth-parts agreeing with the type of the genus. Male unknown.

Female.—The female presents the usual sexual differences.

The vulva.—In the “cyphopodite” the chitinization, both of the pilose lateral lobes (fig. 1, *ex*, *in*) and of the naked posterior lobe (*pl*), is well marked. The posterior lobe is

Fig. 1.



Brachychæteuma quartum, posterior view of the right vulva. *ex*, *in*, external and internal lobes of the “cyphopodite”; *pl*, posterior lobe. $\times 260$. H. K. B.-B. del.

simple in form, and is neither provided with a marked median elevation nor with lateral folds of chitin, though, as usual, the chitin of the posterior lobe as a whole is stouter than that of the rest of the organ. When viewed from behind the distal limit of the posterior lobe is almost flat and its lateral borders are simple, being convex in profile. From the same point of view a strong band of chitin is seen to arise from the external edge of the lobe at the height of its convexity; this band passes transversely towards the internal edge, and, losing its definition, hardly unites with it. A

short, proximally directed ridge of the same nature arises from a similar position on the internal border of the lobe.

Hab. Bakewell, wild, in a well-wooded Carboniferous Limestone district, under a stone.

Type. Slides 1275 and 1276, tube 1277, Brade-Birks collection.

It seems a convenient opportunity to give a diagnostic key to the females of the genus *Brachychateuma*, as follows:—

- | | | |
|---|----|--|
| 1 a. Posterior lobe (of the "cyphopodite") lacking a pair of definite circular thickenings of chitin | 2. | |
| 1 b. Posterior lobe furnished with a pair of definite circular thickenings of chitin .. | | [Birks. |
| 2 a. Posterior lobe with a marked median elevation | 3. | <i>B. melanops</i> , Brade- |
| 2 b. Posterior lobe without a marked median elevation | | <i>B. quartum</i> , nobis. |
| 3 a. Posterior lobe with a small median elevation and well-marked lateral folds of chitin | | [Brade-Birks. |
| 3 b. Posterior lobe with a large and outwardly directed median elevation, but lacking lateral folds of chitin | | <i>B. bagnalli</i> , Verhoeff et
[et Brade-Birks.
<i>B. bradeæ</i> , Brölemann |

In the males of the genus it seems probable that development of the telepodite of the anterior gonopods runs parallel with the development of the posterior lobe of the "cyphopodite" in the vulva of the female. If that is really so, we should expect that when examples of the male of *B. quartum* are found, the telepoditic elements of the anterior gonopods will be similar to those of *B. bradeæ* and *B. bagnalli*—perhaps slightly less complicated; we should not expect the complex condition of the telepoditic horns found in *B. melanops*. In the species known previously the coxal prolongations of the anterior gonopods have been useful diagnostic features, and by analogy we should expect them to differ in *B. quartum* from those of the other species and to be simpler in form than in any of them. Thus, they should most closely resemble the coxal prolongations of *B. bagnalli**. The syncoxite of the same gonopods appears to be a fairly constant feature, and so it is to be expected that in this character and in the disposition of the pseudoflagella the male of *B. quartum* will agree with the other species.

* The coxal prolongations might, for example, be broader distally and less elevated than in *B. bagnalli*.

Chordeumella scutellare bagnalli, var. n.

Dimensions of the male.—Length 6·0, breadth 0·6 mm.

Other external characters.—In all essentials these are the same as those of *C. scutellare brölemanni*, though, perhaps, the new variety is rather darker dorsally.

Modified Appendages of the Male:

Anterior paragonopods (fig. 2).—These show characters intermediate between those of the type of the species and the variety *C. scutellare brölemanni*. The appendages are represented by a pair of conical processes, the coxal elements,

Fig. 2.

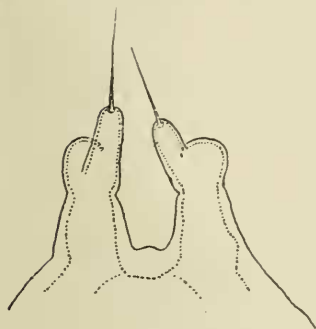


Fig. 3.

*Chordeumella scutellare bagnalli*.

Fig. 2.—Anterior paragonopods, $\times 260$. H. K. B.-B. del.

Fig. 3.—Sternite and left femorite of the anterior gonopods, $\times 260$. H. K. B.-B. del.

which bear long apical hairs. A definite indentation of the internal border of each paragonopod, due to an obtuse-angled inward bend of the appendage, corresponds in position to a feeble fold in the case of *C. scutellare scutellare*. The shoulder opposite the indentation is developed into a rounded pigmented naked projection on the external border of the limb. This projection is the rudiment of a telepodite, but the point of division between telepoditic and coxal elements is

nearer obliteration than is the case in *C. scutellare brölemanni*. Whereas in *brölemanni* the apices of the telepoditic and coxal elements are of about the same elevation, in this new variety the telepoditic element falls considerably short of the elevation of the coxite.

Anterior gonopods (fig. 3).—These, again, are intermediate in form between those of the type of the species and *brölemanni*. The sternite is furnished with a median prolongation, well developed and tongue-like in shape and simply rounded at its extremity, its distal border being neither emarginate as in *C. scutellare scutellare*, nor drawn out into a definite peak-like projection as in *C. scutellare brölemanni*.

Posterior gonopods, first pair of legs of the eighth segment, posterior paragonopods.—In all essentials these agree with the corresponding limbs of the type of the species; thus they also resemble those of *brölemanni*.

Female. Adult unknown.

Hab. Under wood, on a garden-path, etc., Beech House, Great Longstone, 1918.

Dedication. We have pleasure in naming this variety in honour of our friend and colleague Mr. R. S. Bagnall, F.L.S. etc., of Blayden-upon-Tyne.

Types. Tube 1271, slides 1272, 1273, 1274, and 1349, Brade-Birks collection.

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* Published under the auspices of the Lancashire and Cheshire Fauna Committee.